REMARKS

This is in response to the Office Action that was mailed on August 9, 2004. Claims 1, 2, 6, and 11-13 are amended in order to obviate various formal rejections stated in the Office Action. Regarding the amendment of claims 1 and 2 to recite "an absorptivity coefficient of light of not more than 7.0 mm^{-1}", it is noted that the absorptivity coefficient "α" (mm^{-1}) is defined by the formula: $-\ln (I/I_o) = \alpha \bullet L$, in which I is an output of light, I_o is an input of light, and L (mm) is a thickness of film. The phrases "a pre-baked film 25 μm in thickness" and "for a light 650 nm wavelength, transmittance of … 84% were obtained" are disclosed as conditions at, respectively, page 9, line 17 and page 15, lines 6-7 of the specification. Accordingly, absorptivity coefficient α in claims 1 and 2 is derived from the formula: $\alpha = -\ln (84/100)/0.025 \cong 7.0$. Claim 7 is cancelled without prejudice, having been rendered superfluous by the amendment of claim 6. No new matter is introduced by this Amendment. With this Amendment, claims 1-6 and 8-13 are pending in the application.

Objection was raised to the specification as not providing express antecedent basis for the recitation of an organic polymer film having an absorptivity coefficient of light of not more than 1.6 mm^{-1} in the wavelength of 650 nm. That recitation was introduced in claim 19 in the Amendment filed on July 29, 2002 in parent application Serial No. 09/539,385. As explained in the Remarks section of that Amendment:

> In general, an absorptivity coefficient "α" (mm^{-1}) is defined by the formula: $-\ln (I/I_o) = \alpha \bullet L$ in which I is an output of light, I_o is an input of light, and L (mm) is a thickness of film. … New claim 19 is derived from disclosure appearing on pages 9 and 10 of the specification. Page 9 discloses "a pre-baked film 25 μm in thickness" (page

9, line 17). Page 10 discloses "for a light 650 nm wavelength … a transmittance of … 96%" (condition C: page 10, lines 6-15). Absorptivity coefficient α in claim 19 is derived from the formula $\alpha = -\ln (96/100)/0.025 \cong 1.6$.

The corresponding amendment is now made to the specification herein, thereby obviating the antecedent basis issue raised by the Examiner.

Claims 1, 4-6, and 8-13 were rejected under the second paragraph of 35 U.S.C. §112 as failing to define the invention properly.

The Examiner argued that the terminology "high transmittance" rendered the claims indefinite. Specific examples of "high transmittance" are found throughout the specification. The present amendments of claims 1 and 2 are based upon disclosure in the paragraph that starts in line 2 on page 15 of the specification. Accordingly, the terminology in question no longer appears in the claims.

Claim 6 was alleged to include language having inadequate antecedent basis. This issue has been obviated by amending claim 6 to depend upon claim 5 (thereby canceling claim 7, which is rendered superfluous by this amendment of claim 6).

Claims 11-13 were allegedly rendered indefinite by their recitation of the suffix "type". This ground of rejection has been obviated by the amendment of claims 11-13.

It is respectfully submitted that claims 1-6 and 8-13 each now satisfies the requirements of the statute.

THE INVENTION. The present provides an optical device having an organic polymer film with a high transmittance, that is, a specific absorptivity coefficient of light of 7.0 mm^{-1}, by forming

an applied film and then at least baking the applied film under vacuum.

Claims 1, 4, 5, and 13 were rejected under 35 U.S.C. §102(b) as being anticipated by US 4,748,228 (Shoji). Claims 1. 4, 5, 8, and 13 were rejected under 35 U.S.C. §102(b) as being anticipated by US 4,954,144 (Burgoyne). The purpose and functioning of the Shoji and Burgoyne technologies differ dramatically from that of the present invention. That is, although Shoji and Burgoyne disclose baking a similar polyimide film under vacuum as alleged by the Examiner, the polyimide film of Shoji is formed for obtaining ***good adhesion*** in Shoji. Column 1, lines 8-13. Correspondingly, the polyimide film of Burgoyne is formed for obtaining ***high gas permeability*** properties. Column 2, lines 36-38. In contrast, the present invention provides an optical device having a polyimide film with a high transmittance. The polyimide film of the present invention thus differs completely from those of Shoji and Burgoyne as to its intent and properties.

Claims 1, 4-6, 8, 10, and 13 were rejected under 35 U.S.C. §103(a) as being unpatentable over US 5,694,513 (Okaniwa) in view of US 5,108,201 (Matsuura) and US 4,686,147 (Matsuyama). Okaniwa teaches a method for producing a waveguide having an organic polymer film, the method comprising applying a solution containing an organic polymer film-forming starting material onto a substrate to form an applied film, and then baking the applied film to form the organic polymer film. Although Okaniwa does not teach that "the baking takes place under a vacuum of 1 Torr or lower", as the Examiner indicates, he suggests that the material used to produce the waveguide should have ***high heat resistance***. Matsuyama teaches that, in the art of heat-curing/baking polyimide resin films, it is most desirable to perform such heat-curing/baking in a non-

oxidizing atmosphere under a reduced pressure such as 0.1 Pa or below, or in a vacuum, as indicated by the Examiner, so that the ***heat resistance*** of the polyimide layer is remarkably enhanced due to the curing in a vacuum. Matsuura teaches that in the art of producing polyimide optical waveguides ***high heat resistance*** is a desirable pre-requisite for the optical waveguide, as indicated by the Examiner.

However, the optical device of the present invention does not relate to "high heat resistance". Also, neither Matsuura nor Matsuyama nor Okaniwa teaches or suggests an optical device having an organic polymer film with a specific absorptivity coefficient of light of 7.0 mm^{-1}. Accordingly, one of ordinary skill in the art could not combine the teachings of Okaniwa, Matsuura, and Matsuyama to provide an optical device of the present invention, which has an organic polymer film with a specific absorptivity coefficient of light by forming an applied film and then at least baking the applied film under vacuum. The Examiner has failed to establish a sustainable *prima facie* case of obviousness with respect to the present claims.

Conclusion

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Richard Gallagher (Reg. No. 28,781) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees

required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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